

## OBSTETRICS

UNDER THE CHARGE OF

EDWARD P. DAVIS, A.M., M.D.,

PROFESSOR OF OBSTETRICS IN THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

**The Tolerance of Freshly Delivered Women to Excessive Loss of Blood.**—WILLIAMS (*Am. Jour. Obst.*, July, 1919) caused the blood lost at labor by various patients to be collected and measured and an effort was made to find out what might be taken as the average and physiological loss. In the literature various estimates are given, Barnes stating that one pound is usually the quantity, Tucker 300 c.c., Ahlfeld 800 c.c. When the question of actual hemorrhage is concerned this is supposed to vary from 300 to 1000 c.c. Williams' series was in 1000 consecutive spontaneous labors occurring in 1339 obstetrical patients. Operative cases and premature labors were not included. The blood was collected by placing a sterile douche pan beneath the patient immediately after the birth of the child and after the placenta had been delivered, any blood contained in its membrane was allowed to escape into the pan and the entire quantity then poured into a gradule and accurately measured in cubic centimeters and entered in the history. In this way contamination by amniotic fluid was avoided and the entire amount of blood which escaped during the third stage of labor and after the expulsion of the placenta, was collected and measured. This simple method was satisfactory and fairly accurate. The placenta was delivered by palpating the uterus gently but avoiding massage unless the uterus was boggy or bleeding was excessive. After from five to thirty minutes it was noted that the uterus had risen 4 to 6 cm. above its original location, while in some cases an indistinct swelling appeared just over the symphysis, this indicated that the placenta had become separated, had passed from the uterine cavity and was free in the lower segment or upper part of the vagina. At this time the placenta was expressed by a gentle push on the fundus. Routine massage of the uterus was avoided and so were premature attempts to express the unseparated placenta. The typical Crede method was only employed when there was serious bleeding or when the placenta had failed to separate within one hour after the birth of the child. In 1000 cases the placenta was expressed from the vagina in 973; expressed by the typical Crede method in 18 and born spontaneously in 9. In no case was it removed manually. The average time elapsing between the birth of the child and expulsion of the placenta was 16.3 minutes, the most frequent time for the delivery of the placenta is between ten and fifteen minutes after the birth of the child. The average bleeding was 343.7 c.c. with the extremes varying from zero to 2400 c.c. In two patients the placental period was entirely bloodless. It must not be understood, however, that this average loss gives a correct idea of the amount of bleeding in spontaneous labor as in 527 out of the 1000 cases the amount was less than 300 c.c. The most usual loss is between 100 and 300 c.c. and the reason for the higher average in the series was the inclusion of

relatively rare case of previous hemorrhage. These results resemble closely those of Tucker and Champneys 300 to 360 c.c. and smaller than some others 500 to 800 c.c. In the last, 2058 cases studied by Ahlfelt the average loss was 505.1 c.c. which was 161.4 c.c. or one-third greater. As Ahlfelt practices extreme conservatism in delivering his placenta it would not seem that loss of blood is lessened by such conservatism. To determine the limit of physiological bleeding and postpartum hemorrhage, 600 c.c. was taken, and 130 cases, or 13 per cent., had this loss or more. Experience has shown that serious symptoms do not follow hemorrhage of less than 1000 c.c. but in the series there were 49 women who lost one liter or more; of these, 31 lost between 1000 and 1250 c.c. and 18 more than that quantity; only one patient in the first group showed symptoms of acute anemia, while the second group of 18 were especially interesting on account of the greater loss of blood. The study of the 49 hemorrhage cases in which the loss of blood was 1000 c.c. or more shows similar points of interest. It is generally believed that patients suffering from serious hemorrhage show rapid and small pulse, shock, air hunger, rapid decrease in percentage of hemoglobin and number of red cells, which reaches its lowest point by the third day and then gradually returns to normal. When the histories of these patients are studied they show that not a few women recently delivered may lose excessive quantities of blood without presenting evidence of shock and that occasionally the extent of the hemorrhage would not have been appreciated had the blood lost not been collected and measured. Of 31 women who lost between 1000 c.c. and 1250 c.c. only one showed symptoms attributable to loss of blood. She was considerably shocked and had a pulse-rate of 118 one hour and a quarter after delivery. Four of the 18 losing from 1250 to 2400 c.c. gave some anxiety, but none were seriously ill and all recovered. The condition of the pulse was studied in the 1000 cases during the forty-eight hours following labor, in the group having no hemorrhage the average was 98.66, while in the group having hemorrhage the average pulse-rate was 96.45, a difference of only five beats. Comparing these with patients delivered by operation, it was found that many operative cases had average pulse-rate of 101.9, although they had no hemorrhage. From these figures it is concluded that the pulse-rate following normal spontaneous labor is higher than has been generally believed and postpartum hemorrhage causes less disturbance of the pulse than is generally taught. While the strain of difficult labor necessitating operation causes a greater average elimination than postpartum hemorrhage, in spontaneous labors the average pulse-rate is increased only about five beats when hemorrhage occurs. In operative cases without hemorrhage the normal rate is increased ten beats. The model pulse-rate is smaller than the average. There was a lack of correspondence in the character of the pulse with the quantity of blood lost in cases that had hemorrhage, and this is also true of the general condition of the patient, for in one patient who lost 2400 c.c. of blood the general condition seemed to be good although blood-pressure fell to 70 immediately after labor and the hemoglobin fell to 38 per cent. on the third day. In 5 of the cases of severe hemorrhage a marked reduction in the hemoglobin had occurred, in some of these there was rapid return to normal, but in others the low percentage persisted throughout the patient's stay in the

hospital. The hemoglobin was not markedly lowered unless the hemorrhage exceeded 1250 c.c. In two patients losing 1350 and 1400 c.c. respectively, it fell to 40 per cent. From these observations it is apparent that a certain proportion of women may lose in labor 1250 to 1500 c.c. of blood with comparative impunity and present such slight symptoms that the extent of hemorrhage would not be detected if the blood was not collected and measured. With the usual data these patients had lost from  $\frac{1}{4}$  to  $\frac{1}{2}$  of their total blood. In males and non-pregnant women such loss would produce alarming symptoms, but these were lacking in these parturient patients and transfusion was not considered at any time. The question arises how such immunity is produced and why symptoms of shock do not always develop. It is probable that during the latter months of pregnancy a decided increase of the total amount of blood takes place so that this loss represents a relatively small loss and sufficient is left for the immediate needs of the body. It has been shown by observation that the total amount of blood actually increased during pregnancy, this increase, however, is only slight and the low hemoglobin shown after a serious hemorrhage seems to be proof positive that a large proportion of the blood in the body had actually been lost. We cannot clearly explain these circumstances, but they may be associated with other protective processes which develop during the last weeks of pregnancy and at the time of labor. It has been shown that the nitrogenous metabolism at the time of labor is reduced to a minimum and that women pass through labor with little or no increase in energy consumption as indicated by the oxygen intake and carbon dioxide output. From this it may be assumed that the temporary immunity to the excessive loss of blood some way depends upon these facts and that the patient can get along upon a greatly diminished quantity of blood for a short time after labor so that by the time that normal metabolism has been reestablished the reparative processes will tide the woman over the immediate emergency. It must further be remembered that freshly delivered women are not entirely immune to excessive hemorrhage, but it is interesting to note that the average normal woman can lose 1250 to 1500 c.c. of blood with little or no ill-effect and that many can lose much more with relative impunity. However, in 1 case a loss of 1800 c.c. brought the patient's life into the greatest danger and fatal results have been reported when the loss barely exceeded 300 c.c.

**Pregnancy and Grippe.**—In the *Arch. mens. d'obst. et de gynecol.*, January 19, 1919, PELLISIER gives an account of an epidemic of grippe in the Tarnier Clinic in Paris. There were 75 patients there pregnant, or in the puerperal period, who were attacked by grippe. The epidemic was preceded by isolated cases, commencing in June, 1918. In two months the number of cases had increased and the diseases had taken on a particularly severe form, the epidemic becoming worse in the month of October. Then it abated in November and December, returning in February and March with considerable severity. When the epidemic was studied it was found that among pregnant and puerperal women that the grippe took almost exclusively the pulmonary form. The mortality was comparatively high, 22 per cent. The grippe condition was aggravated by the intervention of pregnancy and later brought on

pulmonary and cardiac lesions and increased the virulence of the phenomena by intoxication. Infection of the genital tract was very frequent by grippe. The secretion of milk did not seem to be delayed by the disease. Hemorrhage was not especially more frequent either before or after labor. The course of labor and delivery was not changed by grippe. Where asphyxia developed in the mother the forceps was used to prevent her from making violent efforts at expulsion, but these forceps deliveries did not seem to be more frequent than usual in cases of grippe. Twenty per cent. of the cases aborted and 77 per cent. had premature labor. The morbidity and mortality of the children was considerably influenced by the disease. There were twenty-seven born prematurely from the seventh to eight and a half months, and with them the mortality was 52 per cent. None of these children born living and taking the disease survived. Of children born at term the mortality was 25 per cent. and 10 per cent. of those born living and taking the disease recovered. In infants from one to six months old the mortality was 40 per cent., and of those children who became ill and recovered there were 20 per cent.

---

**Influenza in Pregnancy.**—ANDERODIAS (*Revue mens. de gynécol. et d'obst.*, June, 1919) had an opportunity to study 29 cases of influenza in pregnant women and among these pregnancy was noted in 37.9 per cent. This corresponds very closely with the statistics of the epidemic of 1889 and 1892. Abortion or premature labor made the patient worse. There was no tendency to bleed and viability had been reached in 61 per cent. of the children. The death-rate among the 29 women was 34 per cent. HARRIS (*Jour. Am. Med. Assn.*, 1919, No. 72) publishes the results of the study of 1350 cases severe enough to have medical treatment. Very mild cases often were not seen by physicians, and in very early pregnancy the diagnosis of pregnancy was frequently not made. In one-half of the pregnant women pneumonia complicated the influenza, and among these the mortality was about 50 per cent., being greater during the last three months of pregnancy. Among all cases the mortality was 27 per cent. When there was no pneumonia the interruption of pregnancy occurred in 26 per cent. and when pneumonia was present in 52 per cent. In the fatal cases the pregnancy was interrupted in the majority (62 per cent.), while in the remaining 38 per cent. there developed abortion or premature labor. When the pregnancy was uninterrupted the mortality was 16 per cent. and when the pregnancy was interrupted 41 per cent.

---

**Ileus in Pregnancy.**—TUXEN (*Hospitalst., Copenhagen*, August 6, 1919) has collected in the literature of the subject 106 cases of ileus among parturient or pregnant women. He has personally seen three. One was caused mechanically by torsion of an ovarian tumor. One occurred in a multipara, aged forty-one years, who had given birth to her fourteenth child. Four and a half hours afterward symptoms of this condition developed and at operation a dermoid cyst ruptured was found. The escape of its contents had produced irritation, and this caused ileus. With the third patient the pressure of the pregnant womb at six months had incarcerated the bowel and a few days after operation the uterus expelled its contents.